M/023/016

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DIV OF OIL GAS & MINING

HE Davis Construction, Inc.

Chicken Creek Gypsum Mine

Supplemental Information II ← for USFS

Submitted June 6, 2005

Response to Letter Dated May 11, 2005

I. General Information

E. see new page III-3

F. will wait for review

G. see new page IIII-3

IV. Description of Operation

B. Maps

See new vicinity map

There is no drawing C-1 all other maps have the Sections clearly marked on them.

Map D-II see new map

Map D-II see all new maps with new numbering

Map E-I, E-2 see new maps

C. Map D-II see all new maps with new numbering

III-3 see new III-4

See new maps of yearly progression

Exploration, see new IV-1 and V-1

Load, see new III-2

Long term plans, see new III-3

D. Equipment, see new III-2 and new maps II-D W & II- D E

E. Equipment, see new III-2 & new IV-2 & new maps II-D W & II- D E

V. Environmental Protection Measures

B. Water and dust control, see new VI - 1 & VI-5

G. SPCC	see revised SPCC plan
Signs	see new IV -1 and maps II - D W and II – D E
Air Quality permit	see copy of air quality permit
General, soil	see new map II - D W and II – D E
	see new III-14 and old III-8
	see copy of Applied Geotechnical Engineering Consultants, Inc. report
	see copy of retention pond calculations
Other	see title pages for USFS
	see new VI-2 blasting protocol
	see new III-3 mining scenario

see also new map checklists
new table of contents
adjustment in numbering of some pages

Table of Contents

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Claim Information

Chicken Creek East

Owner: HE Davis Construction, Inc.
525 West Arrowhead Trail
Spanish Fork, Utah 84660
801-722-2100

Claims:

UMC# 370875
Chicken Creek 1E – W1/2, SW1/4, NW1/4, Sec. 34, T 14 S, R 1 E, SLB & M.

UMC# 370876
Chicken Creek 2E – E1/2, SW1/4, NW1/4. Sec. 34, T 14 S, R 1 E, SLB & M.

UMC# 370877
Chicken Creek 3E – W1/2, SE1/4, NW1/4, Sec. 34, T 14 S, R 1 E, SLB & M.

UMC# 370878
Chicken Creek 4E – E1/2, SE1/4, NW1/4, Sec. 34, T 14 S, R 1 E, SLB & M.

UMC# 370879
Chicken Creek 5E – W1/2, SW1/4, NE1/4, Sec. 34, T 14 S, R 1 E, SLB & M.

Chicken Creek West

Owner: Juab Gypsum, L.L.C.
1055 North 400 East
Nephi, Utah 84660
435-623-1877

Claims:

UMC# - 117022
Security #1 – SE1/4, SW1/4, & SW1/4, SE1/4, Sec. 33, T14 S, R 1 E, SLB&M.

UMC# - 177023
Security #2 – NE1/4, NW1/4, & NW1/4, NE1/4, Sec 4, T 14 S, R 1 E, SLB&M.

UMC# - 177024
Security #3 – SE1/4, NW1/4, & SW1/4, NE1/4, Sec. 4, T 14 S, R 1 E, SLB&M.

UMC# - 177025
Security#4 – NE1/4, SW1/4, & NW1/4, SE1/4, Sec. 4, T 14 S, R 1 E, SLB&M.

105.1 – Base Map

Base Map Checklist

Check		Map ID
✓	(a) Property boundaries of surface ownership of all lands which are to be affected by the mining operations;	II B W + II B E
✓	(b) Perennial, intermittent, or ephemeral streams, springs and other bodies of water; roads, buildings, landing strips, electrical transmission lines, water wells, oil and gas pipelines, existing wells or boreholes, or other existing surface or subsurface facilities within 500 feet of the proposed mining operations;	II D W + II D E
✓	(c) Proposed route access to the mining operations from nearest publicly maintained highway;	II A
✓	(d) Known areas which have been previously impacted by mining or exploration activities within the proposed land affected;	III A W + III A E
✓	(e) Areas proposed to be disturbed or reclaimed over the life of the project or other suitable time period.	III B W + III B E

105.2 – Surface Facilities Map

Surface Facilities Map Checklist

Check		Map ID
✓	(a) Proposed surface facilities, including but not limited to: buildings stationary mining/processing equipment, roads, utilities, power lines, proposed drainage control structures, and the location of topsoil storage areas, overburden/waste dumps, tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, and wastewater discharge treatment and contamination facilities;	II Dw + II DE III Bw + III BE
✓	(b) A border clearly outlining the extent of the surface area proposed to be affected by mining operations, and the number of acres proposed to be affected;	III Bw + III BE
✓	(c) The location of known test borings, or core holes.	N/A

105.3 – Additional Maps

Reclamation Map Checklist

Check		Map ID
✓	(a) Areas of the site to receive various reclamation treatments shaded, cross hatched or colored to identify which reclamation treatments will be applied. Areas would include: buildings, stationary mining/processing equipment, roads, utilities, proposed drainage improvements or reconstruction, and sediment control structures, topsoil storage areas, waste dumps, , tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, ponds and wastewater discharge, treatment and containment facilities. Reclamation treatments may include ripping, regrading, replacing soil, fertilizing, mulching, broadcast seeding, drill seeding, and hydroseeding;	II E W + II E E
✓	(b) A border clearly outlining the extent of the area to be reclaimed after mining, the number of acres disturbed, and the number of acres proposed for reclamation;	II E W + II E E
✓	(c) Areas disturbed by this operation which are included in a request for a variance from the reclamation standard;	II E W + II E E
✓	(d) Highwalls which are proposed to remain steeper than 45 degrees and slopes which are proposed to remain steeper than 3 horizontal : 1 vertical.	II E W + II E E

106.2 Type of operation to be conducted.

This mining operation will involve the direct surface mining of gypsum deposits. Mineral extraction will be accomplished by drilling and blasting possibly about 2 times per month in order to break the rock into sizes that can be handled by a trackhoe or loader. Loaders will pick up the material from the mine and deposit it directly into the crusher. After crushing, the material is transferred to a screen plant that sizes the material into fines, 2"- and 6"-. The sized material is placed into stockpiles. From the stockpiles loaders place it into haul trucks, which transport it offsite.

Drilling and blasting is a necessary part of the mining process. HE Davis will follow a blasting protocol.

Some reclamation will happen concurrently with mining operations including final grading as mining proceeds. Topsoil placement will also take place in certain areas as the mining proceeds because some areas will become inaccessible to large equipment.

This mine is currently in operation and has been since at least the mid 1990's. The Chicken Creek West mine is divided into 2 parts, the current mine site and a proposed future site South and a little East of the current site. The current mine site probably has about 10 years of material to be mined. The Proposed site has the potential of being in operation for about 40 years. The Chicken Creek East mine has had some mining take place and there are also approximately 40 years reserves in this deposit.

The mining operations in the Chicken Creek mine are seasonal. Mining will begin each year on or after the 1st of March and will be discontinued by the 15th of November. Any reclamation, sloping, stabilizing, etc., that can be accomplished at the end of the operations year will be done during October and the first two weeks of November. Any seeding will take place as late as possible but should be done in November, weather permitting. An estimate of completion of all mining and reclamation would be by 20453~~0~~.

The mine could produce up to 100 loads (a load in a haul truck is approximately 44 ton of material) from the mine to the crusher each day with the average being somewhat less. The trucks used to transport the material off site would be around 75 loads (a load in a transport truck is approximately 34 ton of material) per day with an average being less. The typical equipment at this mine includes up to 2 trackhoes, 2 980 loaders, 2 articulated dump trucks (45 ton capacity), a generator, a water truck (3,000 gallon capacity), crushers and screens (500 TPH capacity), all of which will be used daily while mining is occurring and haul trucks (35 ton capacity), which will be used all which will be used daily even when mining is not active. The crushers and screens will be controlled from a control van which is a converted semi-trailer. There will also be an additional van to house the generator and other misc. equipment. This mine will employ up to 12-15 people some of which are on site daily and others who come on a regular basis. A port-o-potty will be maintained on site for the use of the employees. No processing equipment or sanitation facilities will be stationed on Forest Service Property.

The Chicken Creek mine exists in several deposits and mining may shift from area to area depending on the needs of the operator. The East mine has a lower section that is currently being mined and an upper section that that has not been disturbed yet. The lower mine will be mined each year until that part of the deposit is exhausted. When the lower mine is depleted HE Davis may or may not move into the upper part of the mine and continue operations. This will depend upon economic conditions and feasibility at that time taking into consideration the reclamation that would be required after opening a new area.

The Chicken Creek East mine will be mined concurrently with the West mine as the need arises. This mine is more accessible in adverse weather and also may have more desirable material that will be used to augment or supplement the west mine operations. Material will most likely be removed from the east mine and hauled to the west mine for processing, however HE Davis would like to reserve the right to have processing equipment at the east mine site.

106.3 Estimated acreage

Areas of actual mining:	46.15 ~~45.04~~
Overburden/waste dumps:	Included in mining area
Ore and product stockpiles:	3.53
Access/haul roads:	6.78 ~~24~~
Associated on-site processing facilities:	4.67
Tailings disposal:	0
Other – Please describe:	0
Total Acreage	**61.13 ~~58.81~~**

See proposed disturbed area map #III-B W and #III –B E.

106.4 Nature of material including waste rock/overburden and estimated tonnage

It is anticipated that about 50,000 cubic yards of ore will be mined during an average year. This amount will fluctuate with demand from year to year. Approximately 100 cubic yards of overburden will be removed, to expose the gypsum deposits, each year. This material will include soil and fines, vegetation, and small rock debris. All of which will be stored together in stockpiles to be used later as "topsoil". The overburden is thin enough that all that is collected will be used to reclaim the areas that will be exposed as well as those areas that were already exposed at the time H.E. Davis Construction took over the mine. No waste in the form of tailings or reject material will be produced.

(see table 1 of the "Soils Resources of the Levan Gypsum Mine" report from Mt. Nebo Scientific, Inc. included in section III for soil chemistry)

Thickness of overburden: __ 0-3____ft.

Thickness of mineral deposit: ___200____ft.

Estimated annual volume of overburden: ___100____cy

Estimated annual volume of tailings/reject: ____0_____cy

Estimated annual volume of ore mined: _ 50,000__cy

Overburden/waste description: _soil, vegetation and rock debris__

106.5 Existing soils

The information for this heading is included in a report from Mt. Nebo Scientific, Inc. which comprises the following pages.

106.6 Plan for protecting and re-depositing existing soil

Any soil removal will be done with a trackhoe or dozer. All the soil and any plant matter will be stockpiled together in an area that will be undisturbed by mining activities. The location of this stockpile will be in an area that has already been disturbed by mining immediately below the active mine area or in areas adjacent to the mining. A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile. The Soil will be seeded at the end of each season with a quick cover of grass and legumes in order to prevent erosion. The seed mix for the quick cover vegetation will be broadcast at a rate of 15 PLS lbs./acre (see below). Soil placement or re-deposition will also be accomplished with the use of a trackhoe or dozer and shall be placed at a depth of six inches. Because a trackhoe or dozer will be used to place the soil the surface will be left somewhat uneven, however, the uneven surface will be beneficial in preventing erosion. The uneven surface will also help in re-vegetation efforts by holding seeds in depressions higher on slopes and in a more uniform distribution.

Soil that has been removed from roadways and stored on the shoulders of the road will be replaced using a trackhoe. The soil on the sides of the road will also be planted with a quick cover seed mix. The soil should not be contaminated with salts because there will be no Magnesium Chloride use for dust control on the mine roads, it will only be used on the access road. The soil will be placed to match the original slopes and grades as close as possible. This material will be tested for nutrients and if needed, a soil amendment of composted manure at the rate of 10 tons per acre will be added.

Thickness of soil material to be salvaged and stockpiled:	0 – 40 in.
Area from which soil material can be salvaged:	53.8 acres
Volume of soil to be stockpiled:	27,295cy
Volume of soil already stockpiled:	21,500 cy

Much of the soil that will be used for reclamation of the active mine area has already been removed from the mining area and stockpiled below where the road enters the active mine. The soil that will be used to reclaim the roads is being stored in the shoulder of the road and acts as a berm for water control and a safety barrier. When reclamation is done any extra soil will used to increase the depth of replaced soil from 6" to greater than 6".

Interim Revegetation cover crop

Intermediate Wheatgrass	Elymus hispidus	7 lbs. pls/acre
Slender Wheatgrass	Elymus trachycaulus	3 lbs. pls/acre
Hard Fescue	Festuca ovina var. duriscula	1 lbs. pls/acre
Cicer Milkvetch	Astragalus cicer	4 lbs. pls/acre

106.5 Existing vegetation

The information for this heading is included in a report from Mt. Nebo Scientific, Inc. which comprises the following pages.

106.8 Depth to groundwater, overburden material & geologic setting.

Ground water

The depth of the ground water has not been determined through any monitoring or well sampling. The mine sites are located in bedrock outcroppings and as such no ground water will be encountered. There are no springs, ponds or permanent streams in the immediate area of the mine sites

Geology

The area consists of Arapien Shale with gypsum deposits. "The Arapien Shale is a sequence of red to gray shale, siltstone, fine-grained sandstone, salt, limestone and gypsum-bearing strata, the total thickness aggregating several thousand feet. The Arapien Shale forms the foothills along the southern and southwestern base of Mount Nebo and extends southward to Chicken Creek and beyond on the western side of the Gunnison Plateau.

Arapien Shale is highly contorted by both folding and faulting. Repetition, omission, and thickening and thinning of beds are common. A true thickness probably cannot be determined because of its complicated structure. Johnson (1959) measured a gypsum bed 80 feet thick on Mining Ridge, whereas in the gypsum quarry at the mouth of Salt Creek the gypsum strata measures 250 to 300 feet thick. Discontinuous outcrops and variable thickness of the gypsum along the western front of the Gunnison Plateau is due primarily to folding and faulting.

The Salt Creek and Chicken Creek gypsum occurrences form the main deposits in north central Utah."

"The Chicken Creek gypsum deposits occur 1 ½ miles east of Levan." "Gypsum is exposed in an outcrop about 200 feet high and 250 feet thick, and has been strip-mined. This deposit is similar in geologic occurrence and physical properties to the Salt Creek deposits. Gypsum strata cannot be traced continuously over the eleven miles between the mines, although it does crop out a number of places in between."

(Bullock, Kenneth C., Economic Geology of North Central Utah, **Geology Studies** BYU, Volume 9, Part 1, May, 1962.)

"Gypsum deposits in the Arapien Shale – lenses and beds of pale gray to white massive gypsum. Predominantly rock gypsum, but selenite and satin spare occur."

(Utah Geological Survey Map 135, Plate 2, Provisional Geologic Map of the Levan Quadrangle.)

106.9 Location and size of ore, waste, etc.

Ore - All ore mined from the site will be processed and stockpiled. Any material on top of the gypsum deposit is assumed to be topsoil and will therefore be collected and saved. The gypsum deposit is massive and considered to be "pure". Because of the characteristics of the deposit all materials mined will be consumed and no tailings will be generated. The gypsum will not be treated for the purposes of processing. The ore may be sprayed with water as a dust suppressant, however, any discharge from water sprayed onto the material or from rain water would not be considered hazardous.

Overburden - Overburden will be removed with a trackhoe or dozer. This material will include soil and fines, vegetation, and small rock debris. All of which will be stored together in a stockpile in an area that will be undisturbed by mining activities and will later be used as "topsoil". A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile. The overburden is thin enough that all that is collected will be used to reclaim the areas that will be exposed as well as those areas that were already exposed at the time H.E. Davis Construction took over the mine.

Overburden removed from roadways will be stored on the shoulder of the road. This will be done to control erosion and act as a safety barrier for vehicles.

All the stockpiled soil will be seeded so that a protective covering of vegetation will grow. The vegetation will help prevent erosion as well as add organic matter to the material, which will promote future growth when the material is used for reclamation.

See: interim revegetation cover crop Page III-8.

Tailings – No waste in the form of tailings or reject material is expected.

Dumps and ponds – One small sediment ponds will be constructed Below the stockpile area. The purpose of the pond is to settle out the suspended load of any storm water that comes from the mine site and to retain all storm water.

Effluent discharge point – None constructed or used.

106.6 Plan for protecting and re-depositing existing soil

Any soil removal will be done with a trackhoe or dozer. All the soil and any plant matter will be stockpiled together in an area that will be undisturbed by mining activities. The location of this stockpile will be in an area that has already been disturbed by mining immediately below the active mine area or in areas adjacent to the mining. A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile. The Soil will be seeded at the end of each season with a quick cover of grass and legumes in order to prevent erosion. The seed mix for the quick cover vegetation will be broadcast at a rate of 15 PLS lbs./acre (see below). Soil placement or re-deposition will also be accomplished with the use of a trackhoe or dozer and shall be placed at a depth of six inches. Because a trackhoe or dozer will be used to place the soil the surface will be left somewhat uneven, however, the uneven surface will be beneficial in preventing erosion. The uneven surface will also help in re-vegetation efforts by holding seeds in depressions higher on slopes and in a more uniform distribution.

Soil that has been removed from roadways and stored on the shoulders of the road will be replaced using a trackhoe. The soil on the sides of the road will also be planted with a quick cover seed mix. The soil should not be contaminated with salts because there will be no Magnesium Chloride use for dust control on the mine roads, it will only be used on the access road. The soil will be placed to match the original slopes and grades as close as possible. This material will be tested for nutrients and if needed, a soil amendment of composted manure at the rate of 10 tons per acre will be added.

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Interim Revegetation cover crop

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Cicer Milkvetch	Astragalus cicer	4 lbs. pls/acre

Minimizing Hazards

Shafts and tunnels – none on site.

Disposal of trash - A small 20' X 20' "boneyard" will be kept on site during the life of the operation. The "boneyard" will be kept near the crusher. All trash will be hauled off site and disposed of properly. No trash or equipment parts, etc. will be buried. A "port-a-potty" will also be used and maintained for all employees.

Capping holes - Any exploration will be done by drilling a 4 inch hole directly into the gypsum using a small tracked drill rig. The drill will be positioned on top of the subject deposit and a 4" hole will be drilled up to 60 feet deep. The material removed from the hole will be analyzed for quality. All holes drilled on this site will eventually be consumed by the mining operation or refilled and capped with 1' of concrete. Drill holes made for blasting purposes will be consumed in the blasting process.

Posting signs - The following signs will be posted in appropriate places:

Danger High Bank – above highwall

Hard Hat Area – at entry gate

Danger Flammable Liquid – in fuel area

No Trespassing – on entry gate and other possible entry points

Blasting warning and procedure signs located on the access road below the mine. – above and below mine on road

Berms and fences – 18" Berms will be used to divert storm water away from disturbed areas to help prevent erosion. A 3' berm will be placed above highwall areas to prevent access. Entrance to the site will be controlled by gates along with the natural vegetation and steepness of the site.

Minimizing Damage to Drainage

Care will be taken to avoid disrupting the natural drainage whenever possible. Any drainage that is impacted will be restored as close to original condition and shape as possible. Wherever drainage is disturbed the new channel will be lined with a good gradation of angular, hard, 6"-24" Rip-Rap installed to engineering guidelines to help prevent erosion. Berms will be used to keep runoff from disturbed areas from flowing directly into the drainage system, thus helping to avoid silting.

Minimizing Sediment and Erosion

Berms will be constructed at the edges of the disturbed areas to control any runoff water. The berms will prevent runoff from the disturbed areas from flowing into the drainage system, thus helping to avoid silting. These berms are intended to contain any and all stormwater that falls onto the disturbed area to within the boundary of the disturbance. The berms will also prevent run-on. The lower pad may have some runoff so 1 (one) small sediment basin will be constructed. The basins will contain 135% of a ten year storm event. Stormwater should not leave the site.

Access Roads into the mines will be graded so that water will flow back into the hillside. The road will have a borrow ditch along the hillside. The downhill side of the road will have a berm to prevent trucks from going over the hill and to retain water.

All Sediment controls will be inspected by the Gypsum Superintendent on a quarterly basis to ensure that they are in good condition and working properly. They will also be checked after heavy rainstorms to make sure that they are sized and designed appropriately. Records of inspections will kept for a period of two years.

Deleterious Material Storage and Handling

One diesel tanks will be kept on site. The maximum size of the tank will be 12,000 gallons but this may vary from season to season (sometimes being smaller). The average daily inventory will likely be about 8,000 gallons of fuel. The tanks will be kept in a secondary metal containment structure and will contain 110% of the capacity of any tank placed in it. The tank will be placed in an area that should the secondary containment be breached any spilled fuel will not enter the stream or drainage channels. The fuel usage at this site is about 1,000 gallons per day. A fuel delivery truck delivers about 10,000 gallons every other week using proper offload methods. A SPCC plan has been submitted for this site.

There will also be lube oil stored in about 15, 55 gallon drums. The drums will be placed over drip pans when in use. The drums will be located next to the control vans and crusher sets. When the drums are empty they will be hauled off site and disposed of properly.

Any small spills of fuel or lube oils will be collected and haul to the Geneva Rock Point of the Mountain facility where the contaminated soil will be burned in the asphalt hot plant. Any large spills will be reported to the Division of Environmental Response and Remediation (DERR) and clean–up efforts will follow their guidelines.

Phone # for DERR 801-536-4100
Emergencies 801-536-4123

Soil Salvage

Any topsoil removal will be done with a trackhoe. All the soil and any plant matter will be stockpiled together in an area that will be undisturbed by mining activities. A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile. Soil piles will be seeded.

Material removed from roadways will be stored on the shoulder of the road. This will be done to control erosion and act as a safety barrier for vehicles.

Hole Plugging

Any exploration will be done by drilling a 4 inch hole directly into the gypsum using a small tracked drill rig. The drill will be positioned on top of the subject deposit and a 4" hole will be drilled up to 60 feet deep. The material removed from the hole will be analyzed for quality. All holes drilled on this site will eventually be consumed by the mining operation or refilled and capped with 1' of concrete.

109.1 Surface and groundwater.

Surface water should not be highly impacted by mining activities at this location. Toxins and heavy metals are absent from this type of mining operation and the processing of gypsum. Storm water may pick up some sediment load as it crosses disturbed areas of the site but this will be controlled through the use of berms and a sediment basin. These structures will allow the water to drop its load as it evaporates, soaks into the ground or at one point it settles in a sediment basin.

There are two springs each located about ½ mile from each of the mining areas. The springs feed a culinary water system owned by the Town of Levan. HE Davis has worked with the Town of Levan to install volume monitoring meters on the springs to monitor any changes that may occur. The Town of Levan is the only one with access to the meters which they have indicated they will read on a daily basis and keep the records at the town offices. The records would be made available to HE Davis or DOGM upon request.

All deleterious material will have secondary containment in the form of plastic lined berms or drip pans. This will help prevent potential contaminants from getting onto the ground in the first place. If the ground is contaminated with a deleterious material the contaminated ground will be removed and transported off-site where it will be disposed of legally and properly. Secondary containment of fuel tanks with additional berms and grade control will help to ensure that water supplies are not affected in the event of a catastrophic failure.

The mine is located on bedrock therefore groundwater would not be effected by activities at this mine site.

Blasting Protocol

Maximum limits of blasting

Hole size:	4"
Hole spacing:	7' on center
Pattern:	Chevron
Hole depth:	40'
Number of holes:	70
Load:	2 – 50lbs bags of Prell

Ignited with primer cord with millisecond delays back to front
Some small shots may use ½ stick TNT for ignition

1. Signs will be placed at the bottom of the mine site notifying the public when blasting is to take place in the area.

2. The mine area will also be cleared of all people and checked to make sure that no one is in the mine site.

3. When the blast is to take place a warning signal will be sounded.

4. Blasting will take place.

5. The area will be checked for any unsafe conditions.

6. When the blast has cleared an "all clear" signal will be sounded.

All safety precautions will be observed while drilling, loading and wiring the holes. Blasting will also be engineered to ensure controlled blasts that are not "oversized". The blasting will be conducted by Wolfe drilling and blasting. If the company conducting the blasting changes, HE Davis will notify the US Forest Service as to the change. The US Forest Service will be notified one week before each blasting episode.

109.4 Slope stability, erosion, air, public health and safety.

Slope Stability and Erosion

Slope stability will not be a major factor at this site because the soils are only 0" to 3 feet in depth. The bedrock is close to the surface and is in fact exposed in many locations. The bedrock is massive and is not highly fractured therefore relatively little mass movement will occur.

Erosion will be controlled through the use of berms. The berms will be used to keep storm water from running off directly into the drainage system and to keep storm water from running on to soil storage areas. Because the mine is located primarily on bedrock there will be relatively small amounts of material from disturbed areas that would be eroded.

Air Quality

Because of the nature of the material that is being mined, some dust will be created in excavation, transportation and processing the gypsum. During excavation care will be taken to reduce the amount of dust generated by using good methods of loading and by reducing the amount the material is handled before loading. The dust generated during transportation can be reduced by the use of magnesium chloride sprayed directly onto the road surface. Magnesium chloride will be used only on the county road and load out area and will be spread at a rate of .25 gallons per square meter as per manufacturer's recommendation. Magnesium chloride will be applied 1 to 2 times per year according to need. A water tank will be maintained at the crusher so that spray bars can be used to suppress dust while material is being processed. H.E. Davis Construction will maintain current air quality permits from the Division of Air Quality (DAQ). Water is obtained from different farmers to fill water tanks for dust suppression. This varies from year to year. The water is pumped from irrigation ditches into a 3,000 gallon water truck. The truck delivers the water to the mine site where it is sprayed onto the road through spray bars at the rate of about .5 gallons per square meter. The water is typically applied at least 2 times per day.

Public Health and Safety

The mine is registered with the Mining Safety and Health Administration (MSHA) and all rules and regulations will be observed. Workers at the mine are expected to abide MSHA rules as well as company policies regarding safety for their own safety as well as that of the public. Other safety measures will include limiting access to the site with gates. Signs will be posted and a berm will be placed above high bank areas to warn and protect hikers and hunters. Other signs will be installed throughout the site in appropriate locations including "Hard Hat Area", "No Trespassing" and "Danger Flammable Liquid".

Access Road: The access is from Highway 28 to the Henry Mine on dirt roads.

SPCC Plan Certification

Facility Name: H.E. Davis Construction, Inc. - Levan Chicken Creek Gypsum Mine

Facility Type: Gypsum Mine

Facility Address: .7 miles up Chicken creek Canyon, Levan, UT

Person designated for enforcing Spill Prevention Control and Countermeasure Plan:

Rod Dolph,
Gypsum Superintendent,
H.E. Davis Construction, Inc.

Management Approval:

This Spill Prevention control and Countermeasure Plan is supported by the management of H.E. Davis Construction, Inc. The plan will be implemented and adhered to.

Kay J. Christofferson — 3 June 05

Kay J. Christofferson
President
H.E. Davis Construction, Inc.

Date

Engineer's Certification:

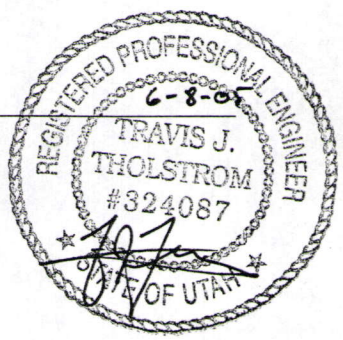
This plan was prepared using sound engineering practices. I have examined the facility and this plan and find that it conforms to the guidelines and provisions of 40 CFR 112.

Name — 6-8-05

Date

324087

State License #



INTRODUCTION

H.E. Davis Construction, Inc. operates gypsum mines in the Levan, Utah area. The gypsum is shipped to various cement plants where it is used to make cement powder. The SPPC plan covers the Levan Chicken Creek mine which includes an East and a West portion. The mine operates intermittently as material is removed to the crushing area. When a stock pile of material has been generated the material is crushed and sized and placed into new stock piles. The material is hauled off site by tracks throughout the year. The plan is warranted because of a diesel fuel tank located on site. Other materials listed in this plan will include lube oils.

INDEX

HE DAVIS CONSTRUCTION
GYPSUM MINES
Vicinity Map

N

Scale 1" =1600'

DRG. #
II - A

to Nephi

LEVAN

100 South

mine access

mine access

CHICKEN CREEK MINE

PIGEON CREEK

(WEST)

(EAST)

Section 33

Section 34

CHICKEN CREEK

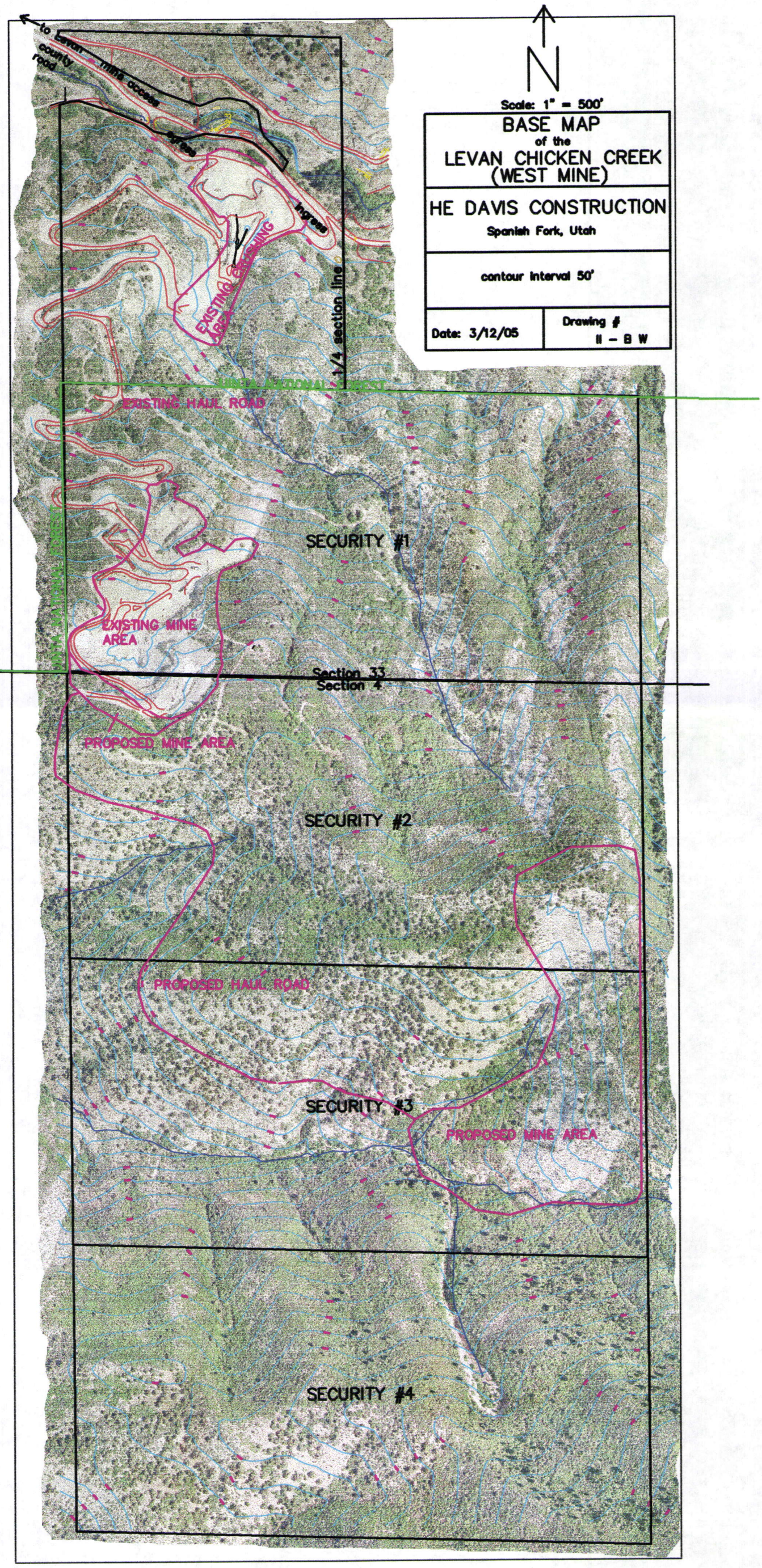
Township 14 South

Township 15 South

State Route 28

ROCK HOLLOW

SPRING HOLLOW


to Levan county road
mine access
egress
Ingress
EXISTING ASPHALT AREA
1/4 section line
UINTA NATIONAL FOREST
EXISTING HAUL ROAD
SECURITY #1
EXISTING MINE AREA
Section 33
Section 4
PROPOSED MINE AREA
SECURITY #2
PROPOSED HAUL ROAD
SECURITY #3
PROPOSED MINE AREA
SECURITY #4
N
Scale: 1" = 500'
BASE MAP
of the
LEVAN CHICKEN CREEK
(WEST MINE)
HE DAVIS CONSTRUCTION
Spanish Fork, Utah
contour interval 50'
Date: 3/12/05
Drawing #
II - 8 W

CHICKEN CREEK 1E

CHICKEN CREEK 2E

CHICKEN CREEK 3E

CHICKEN CREEK 4E

CHICKEN CREEK 5E

Uinta National Forest

Uinta National Forest

Uinta National Forest

PROPOSED MINE AREA

TRACKWAY

1/4 section line

CURRENT MINE AREA

CRUSHER AREA

staging

TRACKWAY

Section 33

Section 34

1/4 section line

to Levan

ingress/egress (15)

mine access road

county road

Chicken Creek

N

Scale 1" = 300'

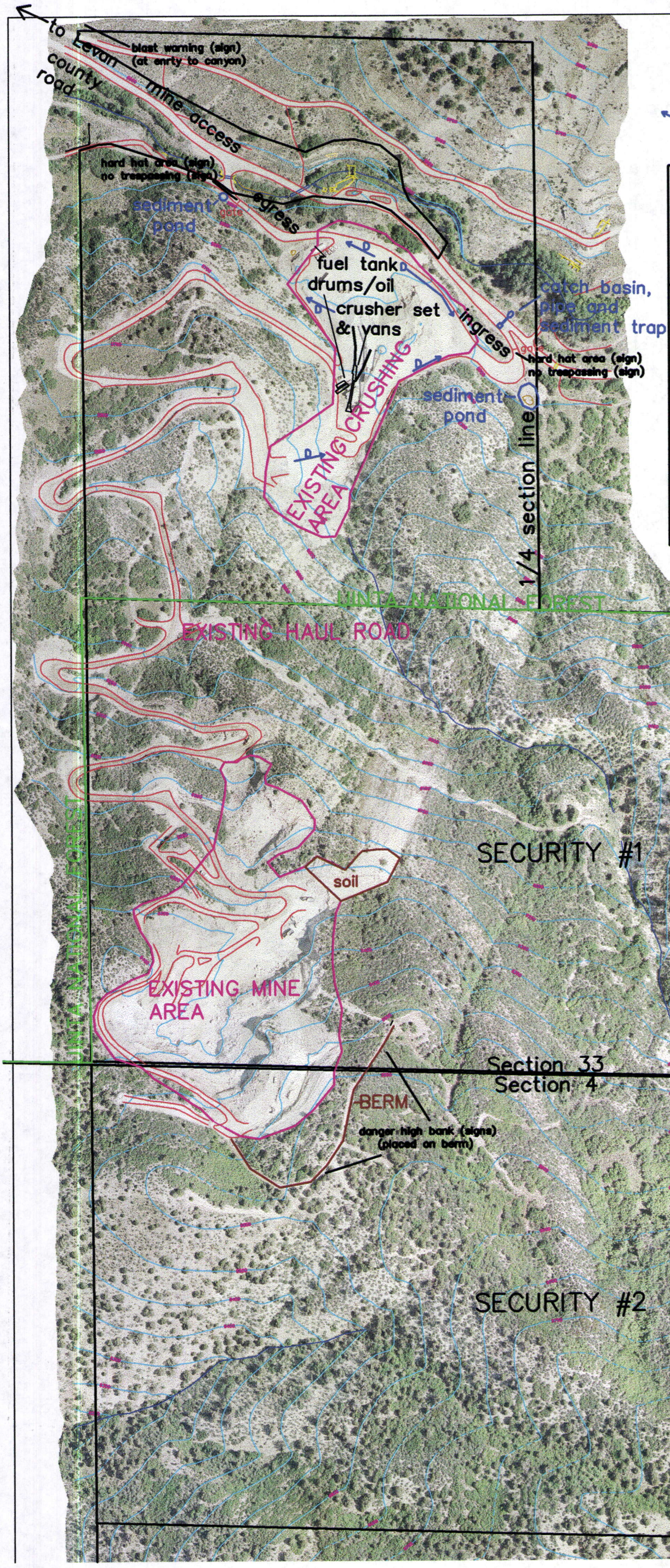
BASE MAP
of the
LEVAN CHICKEN CREEK
(EAST MINE)

HE DAVIS CONSTRUCTION
Spanish Fork, Utah

Contour Interval 50'

Date: 3/12/05

Drawing #
II - B E



= drainage

N

Scale: 1" = 300'

SURFACE STRUCTURES of the LEVAN CHICKEN CREEK (WEST MINE)

HE DAVIS CONSTRUCTION

Spanish Fork, Utah

existing facilities
contour interval 50'

Date: 3/18/05

Drawing # II – D W

SURFACE DRAINAGE AND STORM WATER CONTAINMENT

DRAINAGE

All natural surface drainage at this site is to Chicken Creek. Surface water should not be highly impacted by mining activities at this location. Toxins and heavy metals are absent from this type of mining operation and the processing of gypsum. Storm water may pick up some sediment load as it crosses disturbed areas of the site but this will be controlled through the use of berms and sediment basins. These structures will allow the water to drop its load as it evaporates, soaks into the ground or at a couple of points it settles in a sediment basin. Water that has passed through disturbed area will be detained and not allowed to enter into the Chicken Creek drainage system.

Erosions will be controlled through the use of berms. The berms will be used to keep storm water from running off directly into the drainage system and to keep storm water from running on to soil storage areas. Because the mine is located primarily on bedrock there will be relatively small amounts of material from disturbed areas that would be eroded.

The diesel storage tank will have a berm built around it which will provide secondary containment of 110% of the tank capacity. A water tank will also be kept on site. All tanks are kept in good repair so as to prevent equipment failure.

SPILL MITIGATION

Any spill of liquid substances will be covered with dirt which will act as an absorbent material. Dirt may also be used to build dikes around spills in order to contain and prevent further spreading. This material and any native material that is contaminated will be collected and disposed of properly.

All spills must be reported -- SEE **SPILL REPORTING PROCEDURES** contained in this plan.

SPILL REPORTING PROCEDURES

All spills that occur at this facility must be documented using Spill Report and Response form which is included in the SPCC Plan. This form will be completed as soon as possible after the spill has been properly contained. Significant spills (40 gallons or more) need to be reported to the plant response team immediately.

Spill of oil or any petroleum products into or upon the navigable waters of the United States of Adjoining shorelines (THIS INCLUDES CHICKEN CREEK) will be reported immediately to the following:

U.S. COAST GUARD, WASHINGTON D.C.
National Response Center
(24-hour #) 1-800-424-8802
(24-hour #) 1-202-267-2675

Any spills of 40 gallons or more need to be reported immediately to:

UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
Division of Environmental Response and Remediation
1-801-536-4100
(Emergencies) 1-801-536-4123

H.E. DAVIS CONSTRUCTION, INC.

Rod Dolph-	1-801-592-0807	Home: 1-801-754-0220
Cameron Holman-	1-801-592-8164	Home: 1-801-768-9317
Tony Christofferson-	1-801-592-5578	Home: 1-801-756-9677

Dialing 911 can access all local emergency services:

Juab County Fire Department	911
Juab County Sheriff Department	911
Juab County Ambulance Service	911

Juab County Fire Department, non emergency	1-435-623-0822
Juab County Sheriff Department, non emergency	1-435-623-1349
Juab County Ambulance Service, non emergency	1-435-623-3404

SPILL REPORT AND RESPONSE FORM

A Spill and Leak Response From documents the date of the incident, specific location, and materials released, quantity released, and to whom the spill was reported. The Spill and Leak Record also includes a description of the incident, response procedures implemented to mitigate adverse effects, and corrective measures taken or proposed to prevent recurring releases.

The Spill and Leak Record shall be reviewed and signed by the Plant Manager.

Date:_____		**Reporter's Name:** _____	
Location	**Material**	**Quantity**	**Reported To**
Description of Incident:			
Response Procedure:			
Corrective Action:			
Plant Manager's Signature:			

INSPECTION PROCEDURES AND RECORDS

INSPECTION PROCEDURES

The entire facility is subject to daily visual inspection by the operating personnel. These inspections include observation of facility drainage, bulk storage tanks, transfer operations, and security. Specific items inspected include storage tanks, drums, secondary containment, pumps, valves, flanges, pipes, hoses, lighting, and other equipment. Any sign of deterioration or leakage is immediately investigated and corrective action is promptly initiated.

INSPECTION RECORDS

At least once each calendar year, a record of the inspection, signed by the appropriate supervisor or inspector, is to be made a part of the SPCC Plan (appendix). The following form can be used to complete the inspections.

Instructions: Check "yes" if you observe signs of deterioration, leaks or accumulation of oil at any of the following potential spill sources. Describe corrective actions taken or proposed. Sign the inspection form. For any additional records, maintain the completed form in the appendix of the SPCC Plan.

Date:_____ **Reporter's Name:** _____

TANKS		PUMPS		PIPES, VALVES		DRUMS		DIKES		SECURITY	
YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO

Description : _____

Corrective Action: _____

Inspector's Signature:

FACILITY TANK LOADING AND UNLOADING

Tank loading and unloading procedures shall meet at least the minimum requirements and regulations established by the Department of Transportation. Driver's will be instructed to remain by the tank and visually monitor loading, unloading, and dispensing operations to insure that no leaks, spills or overfills occur. All vehicles loading and unloading shall be visually inspected prior to leaving the facility. If a problem is observed on the vehicle it must be corrected before the tank truck can leave, to avoid any spillage while in transit.

TANK LIST

Tank Type	Tank Contents	Tank Capacity	Location
Steel	Diesel Fuel	12,000 gal.	West Side of Stockpiles
Steel	Water	5,000 gal.	Next to crusher

TRAINING

All personnel shall be properly instructed on the requirements of this plan as well as emergency response procedures. The Crusher Plant operator is designated as the spill prevention coordinator. The Crusher Plant operator will be the Responsible Person on site.

All personnel will also be instructed in the proper and safe operation of all equipment on site.

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

Facility Name: H E Davis - Levan Chicken Creek

Facility Address: .7 miles East of Entry into Chicken Creek Canyon

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes _____ No X

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack a secondary containment that is sufficiently large to contain the capacity of the largest above ground oil storage tank plus sufficient free board to allow precipitation within any above ground oil storage tank area?

Yes _____ No X

3. Does the facility have a total oil storage greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

Yes _____ No X

4. Does the facility have a total oil storage greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula) such that a discharge from the facility would shut down a public drinking water intake?

Yes _____ No X

5. Does the facility have a total oil storage greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

Yes _____ No X

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate and complete.

Tony L Christoffersen
Signature

Tony L. Christoffersen
Name (type or print)

Property / Environmental Mngr.
Title

IF YOU ANSWER "NO" TO ALL QUESTIONS, DO NOT FILE WITH THE STATE OR EPA.

INSPECTION PROCEDURES AND RECORDS

INSPECTION PROCEDURES

The entire facility is subject to daily visual inspection by the operating personnel. These inspections include observation of facility drainage, bulk storage tanks, transfer operations, and security. Specific items inspected include storage tanks, drums, secondary containment, pumps, valves, flanges, pipes, hoses, lighting, and other equipment. Any sign of deterioration or leakage is immediately investigated and corrective action is promptly initiated.

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Instructions: Check "yes" if you observe signs of deterioration, leaks or accumulation of oil at any of the following potential spill sources. Describe corrective actions taken or proposed. Sign the inspection form. For any additional records, maintain the completed form in the appendix of the SPCC Plan.

Date: 5-18-05 **Reporter's Name:** Tony Christofferson

TANKS		PUMPS		PIPES, VALVES		DRUMS		DIKES		SECURITY	
YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
	X		X		X		X		X		X

Description :

Corrective Action:

Inspector's Signature: Tony L Christofferson

State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

DAQE-AN3072001-05

April 29, 2005

Tony Christofferson
H. E. Davis Construction
A Clyde Company
1565 West 400 North
P O Box 1955
Orem, Utah 84059

Dear Mr. Christofferson:

Re: Approval Order: New Gypsum Processing Plant ([redacted]), Juab County – CDS B; ATT; NSPS, TITLE V MINOR
Project Code: N3072-001

The attached document is the Approval Order (AO) for the above-referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Jon Black. He may be reached at (801) 536-4047.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:JB:jc

cc: Central Utah Public Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

APPROVAL ORDER: New Gypsum Processing Plant (Chicken Creek)

Prepared By: Jon Black, Engineer
(801) 536-4047
Email: jlblack@utah.gov

APPROVAL ORDER NUMBER

DAQE-AN3072001-05

Date: April 29, 2005

H E Davis Construction
Source Contact
Tony Christofferson
(801) 802-6913

Richard W. Sprott
Executive Secretary
Utah Air Quality Board

Abstract

H.E. Davis (A Clyde Company) has submitted a Notice of Intent for the operation of permanent gypsum processing plant at the Chicken Creek operation located one-third mile east of the mouth of Chicken Creek canyon, Levan. This operation is located in Juab County, which is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. Best Available Control Technology will be required for this operation, which will consist of wet suppression methods (water sprays and water trucks) to control fugitive PM_{10} emission. New Source Performance Standards (NSPS) 40 CFR 60 Subpart OOO (Standards of Performance for Nonmetallic Mineral Processing Plants) regulations apply to this source. National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Available Control Technology (MACT) regulations do not apply to this source. Title V of the 1990 Clean Air Act applies to this source.

The proposed controlled potential to emit emissions, in tons per year, will be as follows: PM_{10} (+) 6.10 (fugitive and point source), NO_x (+) 19.30, SO_2 (+) 1.64, CO (+) 6.33, and VOC (+) 2.55.

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-4 and no comments were received. This air quality Approval Order (AO) authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

General Conditions:

1. This Approval Order (AO) applies to the following company:

Site Location	Corporate Office Location
H.E. Davis	H.E. Davis
A Clyde Company	A Clyde Company
One-Third Mile East of Chicken Creek Canyon	P.O. Box 538
Levan, Utah 84071	Orem, Utah 84059
Phone Number	(801) 802-6913
Fax Number	(801) 802-6930

The equipment listed in this AO shall be operated at the following location:

One-Third Mile East of the mouth of Chicken Creek Canyon, Levan, Juab County

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,378.0 kilometers Northing, 428.9 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.

3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.

4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401-1.

5. All records referenced in this AO or in applicable NSPS and/or NESHAP and/or MACT standards, which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Records shall be kept for the following minimum periods:

   A. Emission inventories — Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.

   B. All NSPS records for the on-site processing equipment listed in Condition #7.A, 7.B, and 7.F, shall be maintained on-site and shall be made available to the Executive Secretary or the Executive Secretary's representative upon request.

   C. All other records — Two years

6. H.E. Davis shall install and operate the gypsum processing equipment and shall conduct its operations of the crushing and screening production plants in accordance with the terms and conditions of this AO, which was written pursuant to HE Davis's Notice of Intent submitted to the Division of Air Quality (DAQ) on December 7, 2004.

7. The approved installations shall consist of the following equipment or equivalent*:

   A. Two (2) Crushers
   Capacity: 300 tons/hour each

   B. Three (3) Screens
   Capacity: 400 tons/hour each

   C. One (1) Diesel Generator
   Capacity: 600 hp

   D. Storage tanks **
   Fuel oil and diesel tanks

   E. Off highway vehicles**
   Front-end loaders, bulldozers, scrapers, draglines, track-hoes, haul trucks, water trucks, sweeper truck, forklift trucks, boom trucks, etc.

   F. Miscellaneous aggregate processing equipment
   Grizzlies, feeders, splitters, traps, load bins, conveyors, screws, cyclones, clarifiers, and stackers

   G. Miscellaneous**

Welders, pumps, motors, pressure washers, parts washers, and other equipment associated with construction materials processing, manufacture, and maintenance.

* Equivalency shall be determined by the Executive Secretary.

** This equipment is listed for informational purposes only.

8. H.E. Davis shall notify the Executive Secretary in writing when the installation of the equipment listed in Condition #7 has been completed and is operational, as an initial compliance inspection is required. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If construction and/or installation has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the construction and/or installation. At that time, the Executive Secretary shall require documentation of the continuous construction and/or installation of the operation and may revoke the AO in accordance with R307-401-11.

Limitations and Tests Procedures

9. Visible emissions from the following emission points shall not exceed the following values:

A. All crushers - 15% opacity
B. All screens - 10% opacity
C. All conveyor transfer points - 10% opacity
D. All diesel engines - 20% opacity
E. Conveyor drop points - 20% opacity
F. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

For sources that are subject to NSPS, opacity shall be determined by conducting observations in accordance with 40 CFR 60.11(b) and 40 CFR 60, Appendix A, Method 9.

10. Visible fugitive dust emissions from haul-road traffic and mobile equipment in operational areas shall not exceed 20% opacity. Visible emissions determinations for traffic sources shall use procedures similar to Method 9. The normal requirement for observations to be made at 15-second intervals over a six-minute period, however, shall not apply. Six points, distributed along the length of the haul road or in the operational area, shall be chosen by the Executive Secretary or the Executive Secretary's representative. An opacity reading shall be made at each point when a vehicle passes the selected points. Opacity readings shall be made ½ vehicle length or greater behind the vehicle and at approximately ½ the height of the vehicle or greater. The accumulated six readings shall be averaged for the compliance value.

11. The following production and/or consumption limits shall not be exceeded:

A. 150,000 tons of processed[1] material per rolling 12-month period

B. 98,800 gallons of diesel fuel (fuel oil) consumed facility wide per rolling 12-month period

To determine compliance with a rolling 12-month total the owner/operator shall calculate a new 12-month total by the twentieth day of each month using data from the previous 12 months. Records of consumption/production shall be kept for all periods when the plant is in operation. Production shall be determined by scale house records or vendor receipts. Consumption shall be determined by fuel purchase records or other documented proof of fuel usage. The records of consumption/production shall be kept on a daily basis.

Roads and Fugitive Dust

12. H.E. Davis shall abide by a fugitive dust control plan acceptable to the Executive Secretary for control of all dust sources associated with the Chicken Creek Operation. H.E. Davis shall abide by the most current fugitive dust control plan approved by the Executive Secretary. The haul road speed of 15 miles per hour shall be posted. The fugitive dust control plan is attached as Appendix A.

13. The facility shall abide by all applicable requirements of R307-309 for Fugitive Emission and Fugitive Dust sources. However, to be in compliance, this facility must operate in accordance with the most current version of R307-309.

14. The haul road shall be graded to remove the excess gypsum as necessary or as requested by the Executive Secretary in order to meet the opacity limitation of Condition #10.

Fuels

15. The owner/operator shall use #1, #2 or a combination of #1 and #2 diesel fuel in the on-site equipment.

Federal Limitations and Requirements

16. In addition to the requirements of this AO, all applicable provisions of 40 CFR 60, New Source Performance Standards (NSPS) Subpart A, 40 CFR 60.1 to 60.18 and Subpart OOO, 40 CFR 60.670 to 60.76 (Standards of Performance for Nonmetallic Mineral Processing Plants) apply to this installation.

Records & Miscellaneous

17. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being

1 Processed is defined as passing through a crushing or screening device prior to product delivery.

used will be based on information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on equipment authorized by this AO shall be recorded.

18. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.

19. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:
http://www.airquality.utah.gov/

The annual emissions estimations below include point source, fugitive emissions, fugitive dust, road dust, and tail pipe emissions. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The controlled Potential To Emit (PTE) emissions for this source (the entire Chicken Creek Operation) are currently calculated at the following values:

	Pollutant	Tons/yr
A.	PM_{10} (Fugitive and Point Source)	6.10
B.	SO_2	1.64
C.	NO_x	19.30
D.	CO	6.33
E.	VOC	2.55

Approved By

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

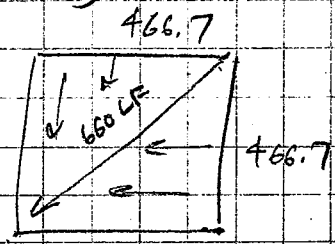
GENEVA ROCK

Customer _____

Project _____

Date _____

Leran Pit. (East side of west pit)
[Chicken Creek]
5 Acre square —
collect water at one corner.



Distance For T_c = 660 ft.
Average Velocity of overland flow on bare ground & 5% slope
= 2 ft/sec (SCS Graph)

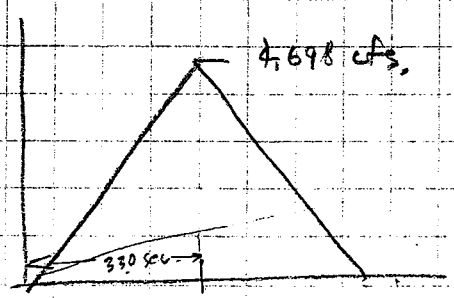
$$T_c = 660\,ft \left(\frac{1\,sec}{2\,ft}\right) = 330\,sec = 5.5\,min.$$

Calculate Runoff.
Rational Formula

$Q = CiA$ use $C = 0.30$
$A = 5$ Acres
$i = 3.132$ in/hr

$$Q = 0.30\,(3.132\,in/hr)(5\,Acres)$$
$$= 4.698\,cfs$$

Total Runoff

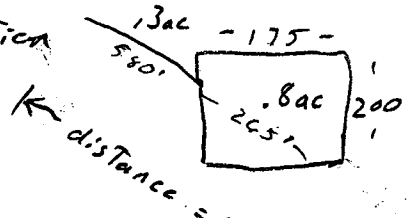


$$V = 4.698\,\frac{ft^3}{sec}\,(330\,sec) = 1,550.34\,ft^3 = 57\,cy.$$

Levan Chicken Creek mine – (west side of west Pit)

Access Road + part of pad.

Area of water collection



Distance for T_c = 845'

Average velocity of overland flow on bare ground + 5% slope
= 2 ft/sec (SCS graph)

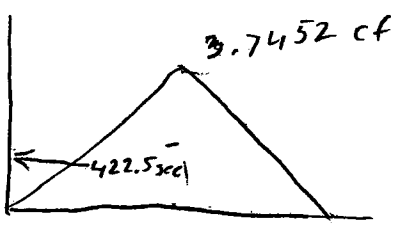
$T_c = 845 \left(\frac{1\ sec}{2\ ft}\right) = 422.5\ sec = 7.04\ min$

calculate runoff

$Q = CiA$ use $C = 0.30$
$A = 1.1$ Acres
$i = 3.132$ in/hr

$Q = 0.30 (3.132\ in/hr)(1.1\ acres)$
$= 3.7452$ cfs

Total Runoff



$V = 3.7452\ \frac{ft^3}{sec} (422.5\ sec.) = 1,582.35\ ft^3 = 58.6\ cy$

Applied Geotechnical Engineering Consultants, Inc.

August 15, 2001

Geneva Rock Products
1565 West 400 North
Orem, UT 84057

Attention: Tony Christofferson
Fax 765-7830

Subject: Slope Stability Evaluation
Geneva Rock Gypsum Mine
Levan, Utah
AGEC Project No. 1010466

Gentlemen:

Applied Geotechnical Engineering Consultants, Inc. was requested to evaluate the stability of proposed rock excavations for the gypsum mine located approximately 1 ½ miles southeast of Levan, Utah. The study includes a site reconnaissance, measurements in the field of rock discontinuities, laboratory testing and engineering analysis.

PROPOSED CONSTRUCTION

Gypsum is being mined from the hillside southeast of Levan, Utah by means of an open excavation. The final excavation for the open-pit mined area will consist of a benched excavation slope with 40 foot high, near vertical walls and 20 foot wide benches. The total planned height of the excavation could be up to approximately 160 feet. The high wall portion of the excavation will have a trend of North 43 degrees East and North 28 degrees East. We anticipate that there may be an excavation slope approximately perpendicular to the high-wall with an orientation of North 46 degrees West.

SITE CONDITIONS

The site is presently being mined for gypsum. The existing excavations consist of an approximately 80 foot cut with 40 foot high sections and a 20 to 30 foot wide bench between. The excavation is being performed by drilling, blasting and loading material into haul trucks.

The natural ground in the area of excavation consists of a hillside with a slope on the order of between 2 and 2½ horizontal to 1 vertical. The slope of the natural ground is down toward the west and northwest.

Vegetation of the natural ground consists of grass, brush and trees. There are some bedrock outcrops in the area of undisturbed ground.

The bedrock exposed in the excavations and in outcrops in the area consists of the Jurassic-aged Arapien Shale based on mapping provided by Geneva Rock Products.

The bedrock is relatively massive with some jointing in the direction of bedding and near vertical orientations. Discontinuities were measured in the field at the area being excavated and in nearby outcrops. Measurements of the discontinuity orientations were plotted on a stereonet and the average orientation of the discontinuity determined. The following is a summary of the average orientation of the measured discontinuities.

DISCONTINUITY	STRIKE, DEGREES	DIP, DEGREES
Bedding	N 32 W	26 SW
Dominant Joint	N 17 W	79 E
Dominant Joint	N 86 E	85 N
Stepped Rock Joint	N 71 W	79 N
Fracture from Blasting	N 23 E	75 NW
Fracture from Blasting	N 53 W	80 SW

The discontinuities generally consist of irregular, relatively rough surfaces with some cementation of the discontinuities.

LABORATORY TESTING

Samples of the rock being excavated were obtained for laboratory testing. Unconfined compressive strength tests were performed on 3 samples of the rock. Unconfined compressive strengths of 2,220, 2,840 and 4,980 pounds per square inch were measured.

Blocks of the rock were placed with their joints and/or bedding planes against each other and tilted to determine the angle at which the rock slid. The average measured angles for the tests indicate that the bedding plane has a friction angle of 40 degrees and the joints have a friction angle of 42 degrees.

ENGINEERING ANALYSIS

Results of the field observations and laboratory tests were used to evaluate the stability of the rock excavation slopes for the 3 proposed slope orientations indicated above. The average discontinuity orientations were plotted on a stereonet and the safety factors for each of the interfaces between discontinuities was determined assuming a friction angle of 40 degrees for the bedding plane and 42 degrees for joint faces.

Safety factors were also determined for sliding along bedding and joint planes.

CONCLUSIONS AND RECOMMENDATIONS

1. Based on the conditions observed at the site, laboratory testing and engineering analysis, the two high-wall excavation slopes with orientation of North 40 degrees East and North 28 degrees East, will have a safety factor against failure of 1.7 for the proposed 40 foot high, 20 foot wide benches if the face of the 40 foot excavation is sloped back to at least 0.2 horizontal to 1 vertical and the blast produced fractures can be eliminated.. The need to slope the face of the excavation is due to a joint set which was observed to dip at approximately 0.1 horizontal to 1 vertical in the direction of the cut face. This assumes that similar conditions are encountered as the excavation is developed. This also assumes that there is no build up of water in the slope.

2. The excavation slope which would be oriented in a general perpendicular direction to the high-wall excavation with orientation of North 46 degrees West will not have a stable configuration with respect to rock discontinuities if constructed with a steep face. The excavation face should be sloped to 1.3 horizontal to 1 vertical or flatter, to provide for a safety factor against failure of at least 1.2.

3. Development of the final rock face should be performed using blasting techniques which minimize fracturing of the rock behind the slope face. Consideration may be given to using special blasting techniques such as buffer blasting, presplit blasting and smoothwall blasting. Care should be taken to not use excessively high blast energies which would result in fracturing of the rock face to remain.

LIMITATIONS

This letter has been prepared in accordance with generally accepted geotechnical engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included in the report are based on the information obtained from field measurements, laboratory testing and engineering analysis as described in the report. Variations in the subsurface conditions may not become evident until additional exploration or excavation is conducted. Rock conditions with measurements of rock discontinuities

should be performed as the excavation is developed to determine if the orientation of the discontinuities is similar to those describe above. If orientations of discontinuities or variations in the rock condition vary significantly from what are describe above, we should be notified so that we can re-evaluate the recommendations given.

If you have any questions, or if we can be of further service, please call.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

LICENSED PROFESSIONAL ENGINEER
8/15/01
No. 260053
DOUGLAS R. HAWKES
STATE OF UTAH

Douglas R. Hawkes, P.E.

Reviewed by JEN, P.E.
DRH/dc

HE Davis Construction, Inc.

Chicken Creek Gypsum Mine

Supplemental Information I

Submitted April 11, 2005

HE DAVIS CONSTRUCTION
GYPSUM MINES
Vicinity Map

N

Scale 1" =1600'

DRG. #
II - A

to Nephi

LEVAN

100 South

State Route 28

mine access

mine access

CHICKEN CREEK MINE

PIGEON CREEK

CHICKEN CREEK

(WEST)

(EAST)

Section 33

Section 34

Section 4

Township 14 South

Township 15 South

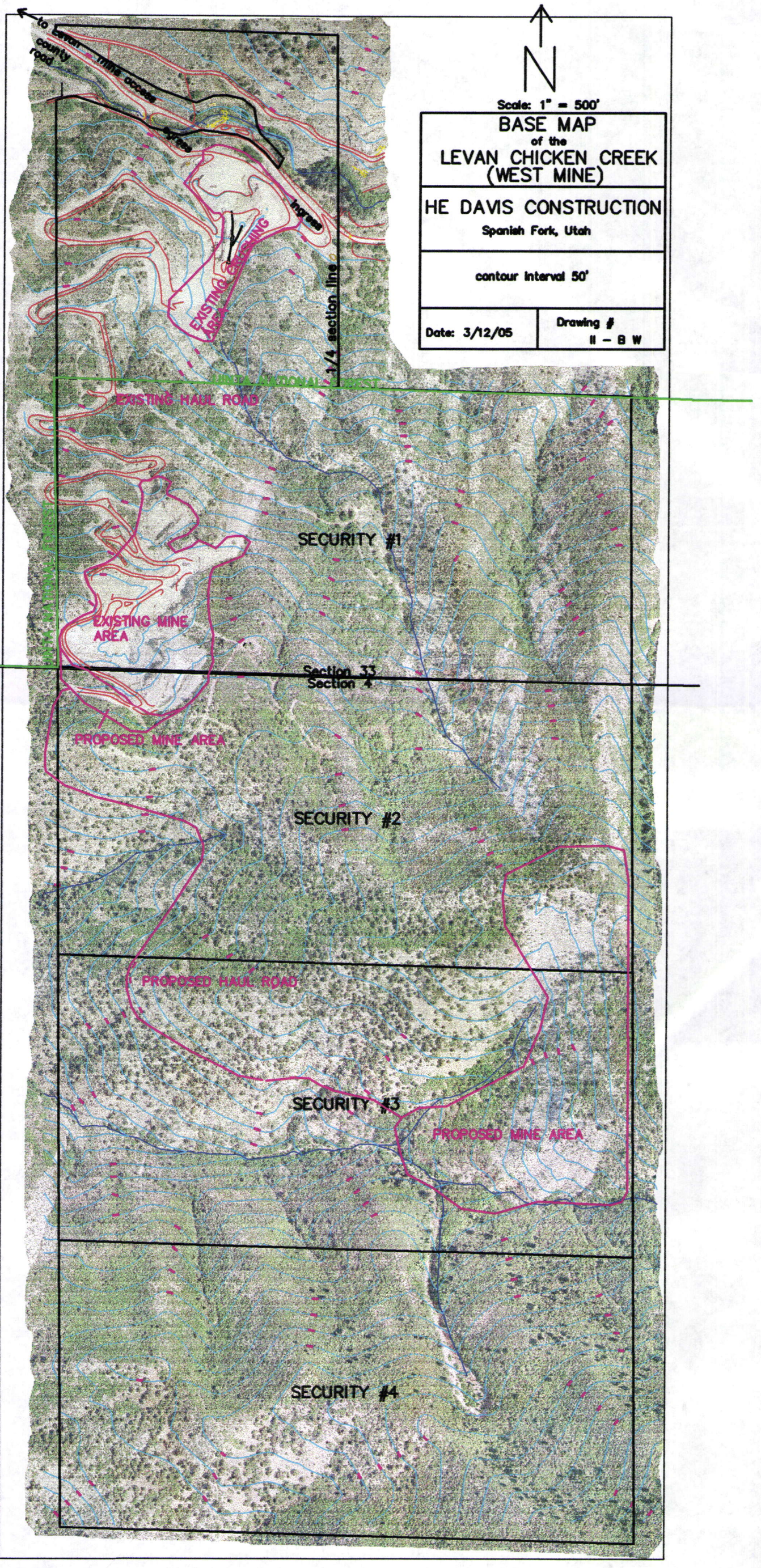
ROCK HOLLOW

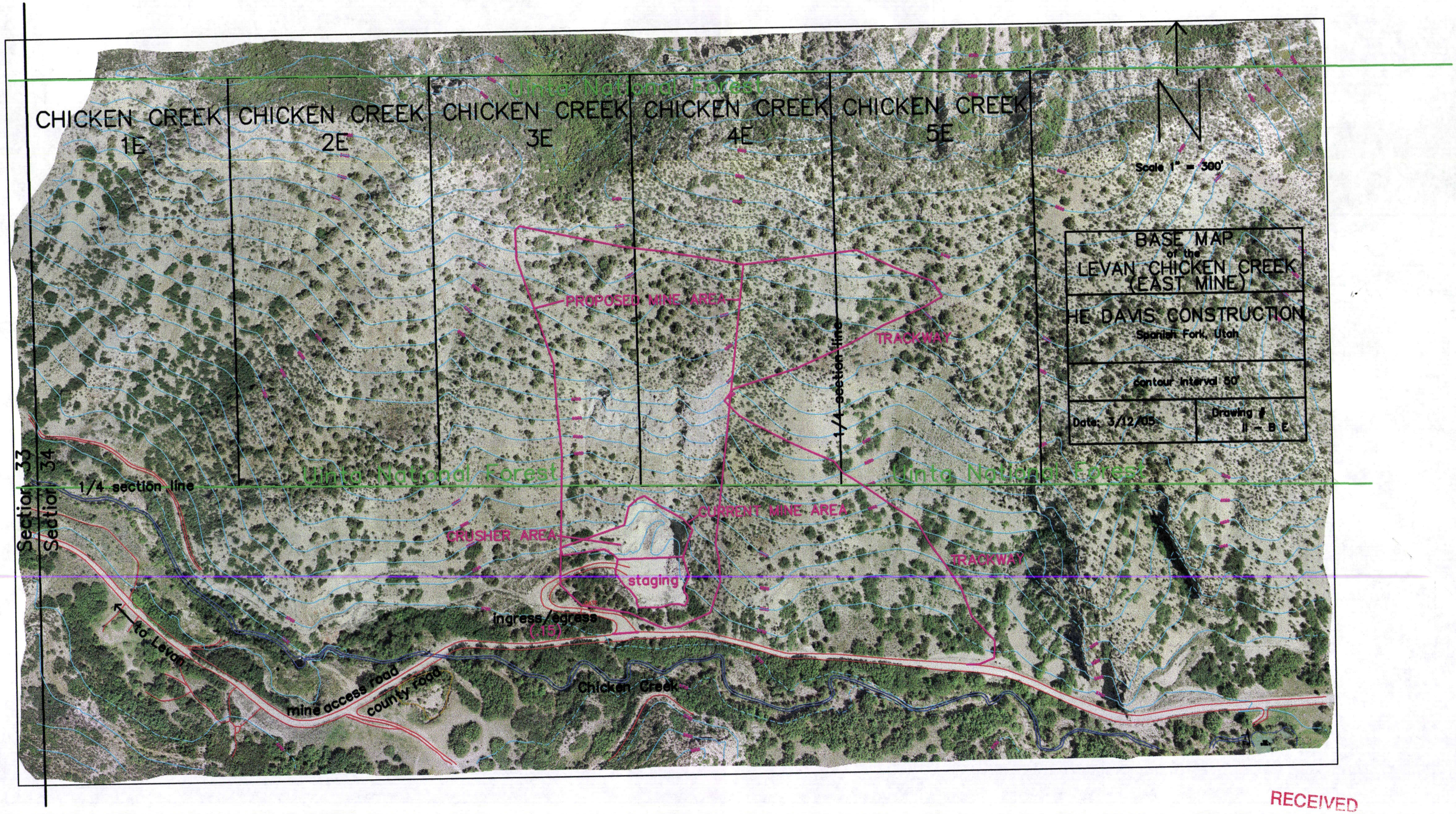
SPRING HOLLOW

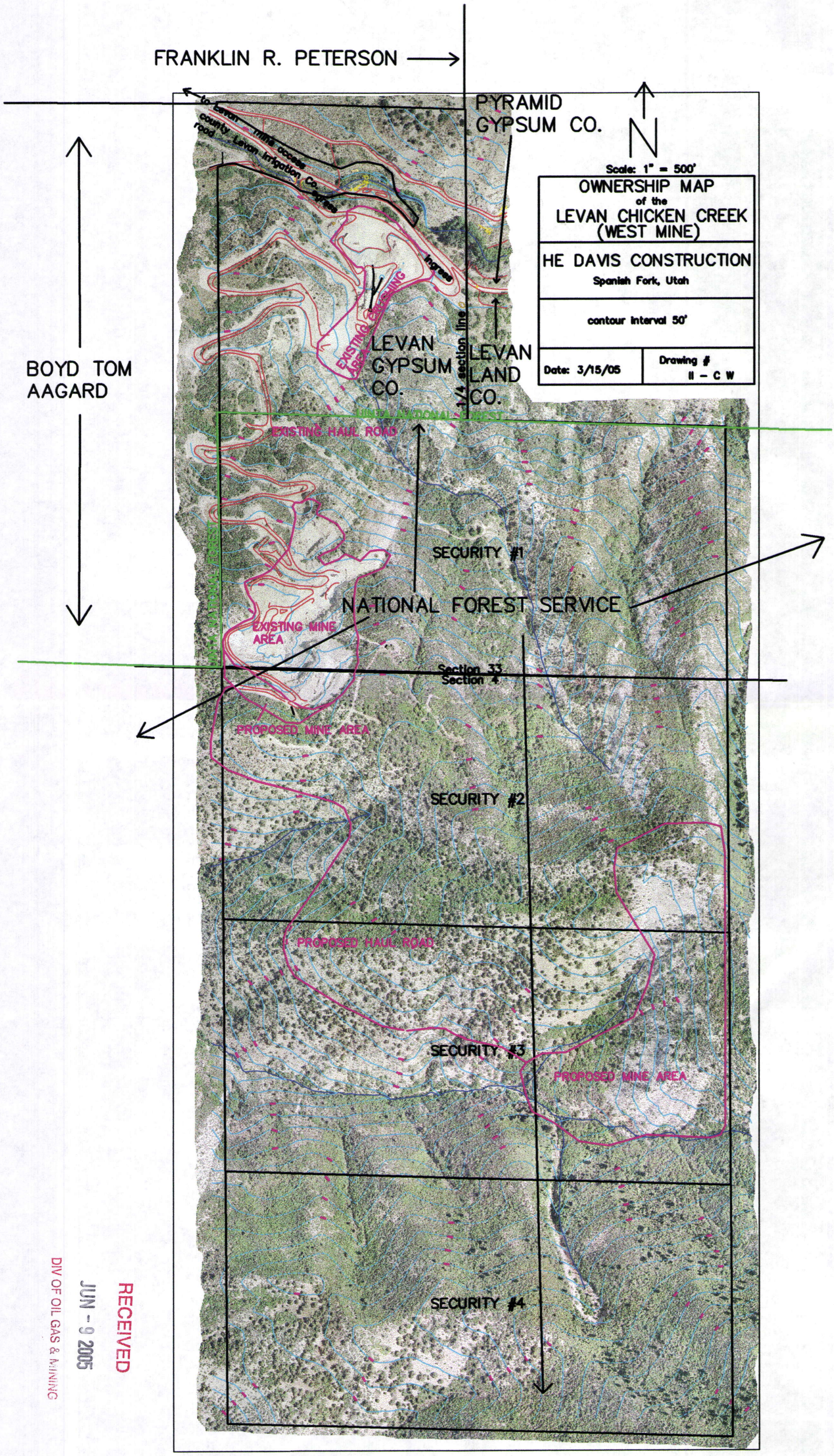
RECEIVED

JUN - 9 2005

DIV OF OIL GAS & MINING







LEVAN LAND CO.

Uinta National Forest

CHICKEN CREEK 1E | CHICKEN CREEK 2E | CHICKEN CREEK 3E | CHICKEN CREEK 4E | CHICKEN CREEK 5E

NATIONAL FOREST SERVICE

N

Scale 1" = 300'

PROPOSED MINE AREA

TRACKWAY

1/4 section line

OWNERSHIP MAP
of the
LEVAN CHICKEN CREEK
(EAST MINE)

HE DAVIS CONSTRUCTION
Spanish Fork, Utah

contour interval 50'

Date: 3/15/05

Drawing #
II - C E

Section 33

Section 34

1/4 section line

Uinta National Forest

Uinta National Forest

CURRENT MINE AREA

LEVAN LAND CO.

TRACKWAY

staging

ingress/egress

to Levan

mine access road

county road

Chicken Creek

RECEIVED

JUN - 9 2005

DIV OF OIL GAS & MINING

to Levan county road

blast warning (sign) (at entry to canyon)

mine access

hard hat area (sign) no trespassing (sign)

egress

sediment pond

gate

danger flammable liquid (sign)

fuel tank

drums/oil

crusher set & vans

ingress

catch basin, pipe and sediment trap

hard hat area (sign) no trespassing (sign)

sediment pond

EXISTING CRUSHING AREA

1/4 section line

= drainage

N

Scale: 1" = 300'

SURFACE STRUCTURES of the LEVAN CHICKEN CREEK (WEST MINE)

HE DAVIS CONSTRUCTION

Spanish Fork, Utah

existing facilities
contour interval 50'

Date: 3/18/05

Drawing # II – D W

UINTA NATIONAL FOREST

EXISTING HAUL ROAD

SECURITY #1

soil

EXISTING MINE AREA

BERM

danger high bank (signs) (placed on berm)

Section 33
Section 4

SECURITY #2

RECEIVED
JUN - 8 2005

DIV OF OIL GAS & MINING

SURFACE STRUCTURES of the LEVAN CHICKEN CREEK (EAST MINE)

HE DAVIS CONSTRUCTION
Spanish Fork, Utah

EXISTING FACILITIES
contour interval 50'

Date: 3/18/05

Drawing # II – D E

3E

4E

National Forest

danger high bank (signs)
(placed and moved as needed)

CURRENT MINE AREA

soil

drainage

drainage

staging

hard hat area (sign)
no trespassing (sign)

GATE

ingress/egress

drainage

proposed ditch
basin, pipe, &
sediment trap

blast warning (sign)
(located east of outcrop)

Scale 1" = 100'

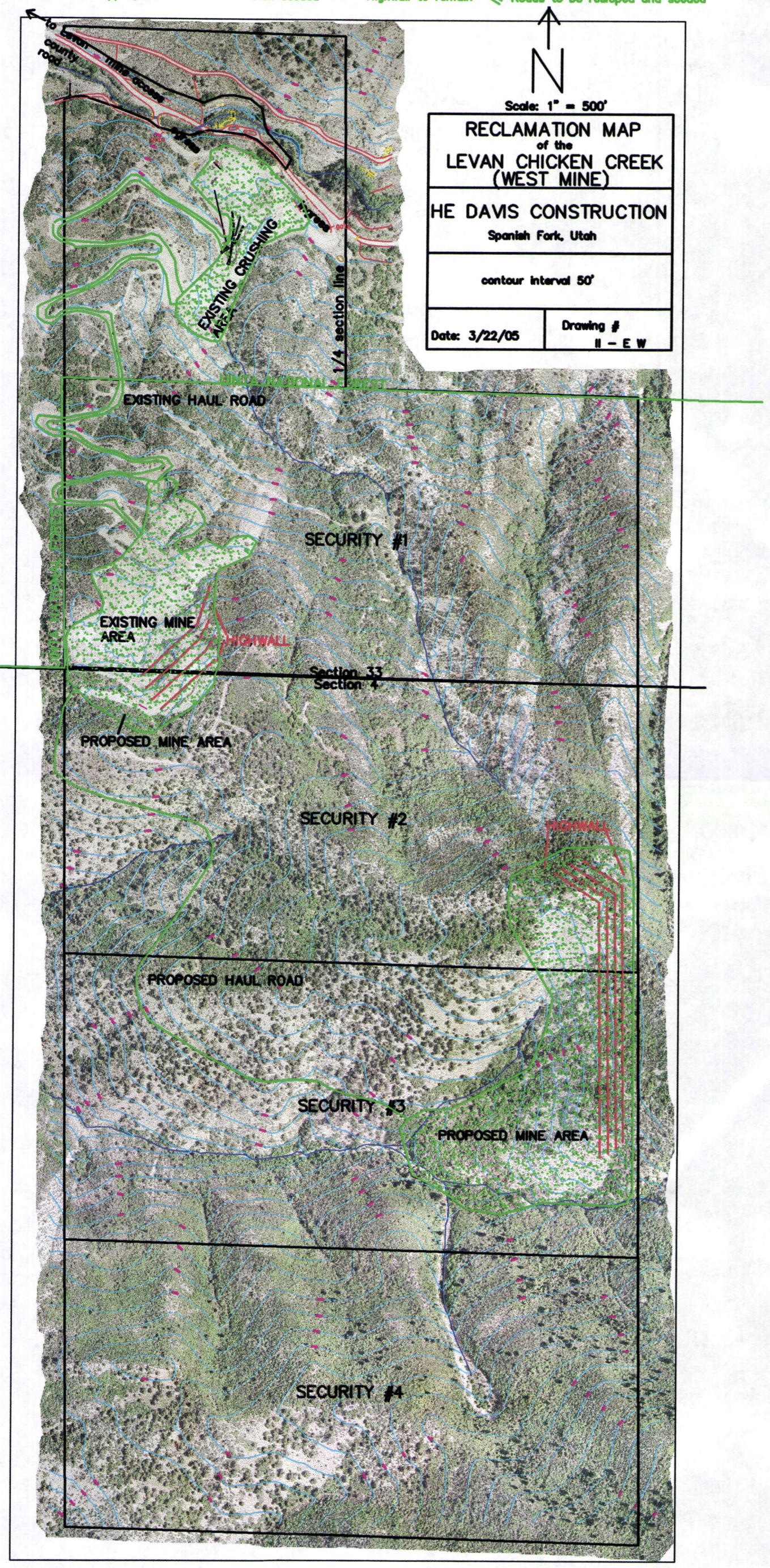
Chicken Creek

ad

nty road

6000
5950
5900
5850
5800
5750
5700

Area to be ripped, recieve 6" of soil then seeded — Highwall to remain — Roads to be reslaped and seeded



N

Scale: 1" = 500'

RECLAMATION MAP of the LEVAN CHICKEN CREEK (WEST MINE)

HE DAVIS CONSTRUCTION

Spanish Fork, Utah

contour interval 50'

Date: 3/22/05

Drawing # II - E W

RECEIVED

JUN - 9 2005

DIV OF OIL GAS & MINING

ingress/egress and Area to be ripped, recieve 6" of soil then seeded — Highwall to remain — Trackway to be resloped to orginal grade and seeded

CHICKEN CREEK 1E

CHICKEN CREEK 2E

CHICKEN CREEK 3E

CHICKEN CREEK 4E

CHICKEN CREEK 5E

Uinta National Forest

Uinta National Forest

Uinta National Forest

Section 33

Section 34

1/4 section line

1/4 section line

Highwall to remain

TRACKWAY

TRACKWAY

ingress/egress

to Levan

mine access road

county road

Chicken Creek

N

Scale 1" = 300'

REGLAMATION MAP
of the
LEVAN CHICKEN CREEK
(EAST MINE)

HE DAVIS CONSTRUCTION
Spanish Fork, Utah

Contour Interval 50'

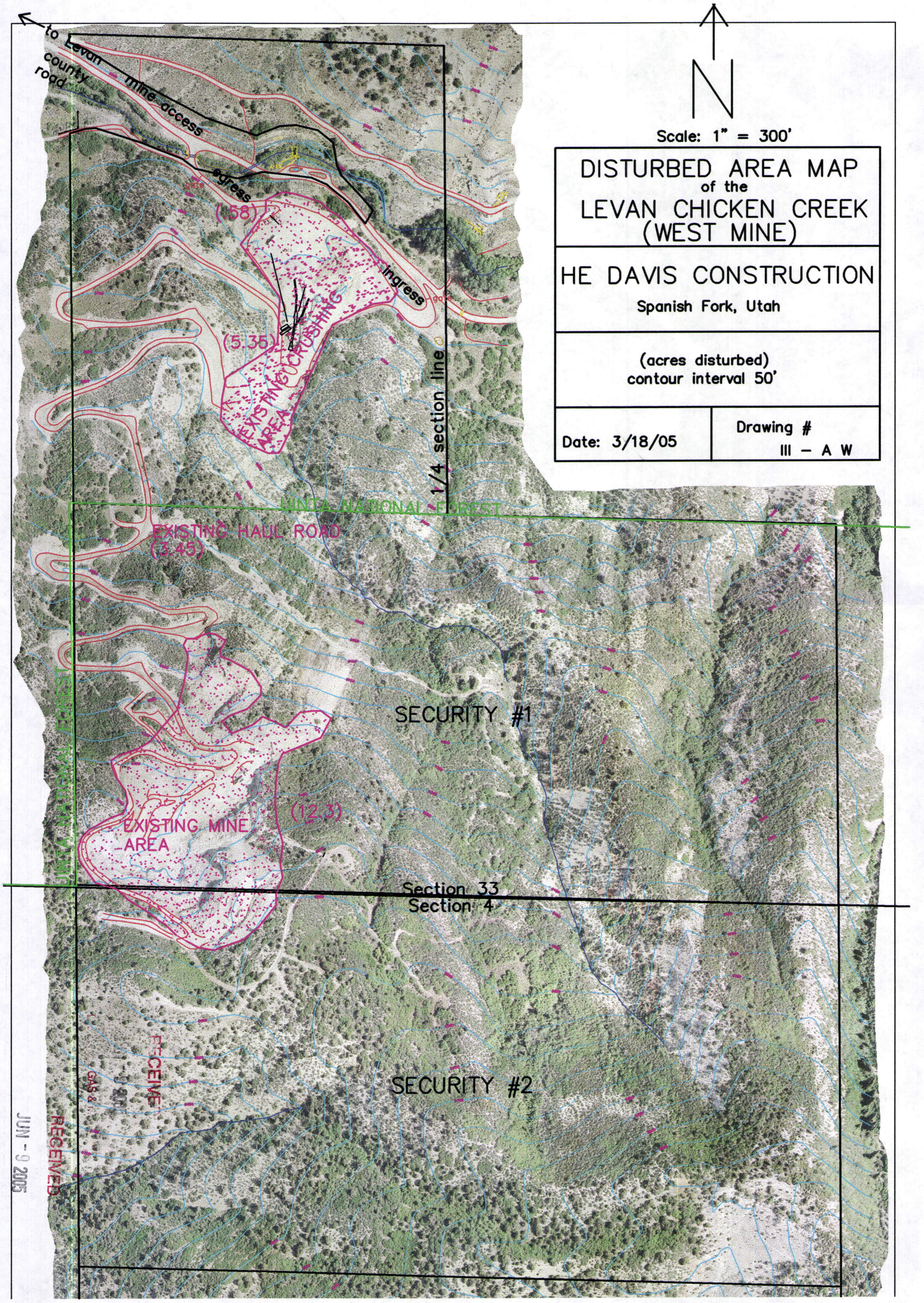
Date: 3/22/05

Drawing #
II - E E

RECEIVED

JUN - 9 2005

DIV OF OIL GAS & MINING



CREEK

CHICKEN CREEK

3E

CHICKEN CREEK C

4E

1/4 sec

RECEIVED

JUN - 9 2005

DIV OF OIL GAS & MINING

a National Forest

DISTURBED AREA MAP
of the
LEVAN CHICKEN CREEK
(EAST MINE)

HE DAVIS CONSTRUCTION
Spanish Fork, Utah

(acres disturbed)
contour interval 50'

Date: 3/18/05

Drawing #
III – A E

CURRENT MINE AREA
(.45)

staging
(.4)

GATE

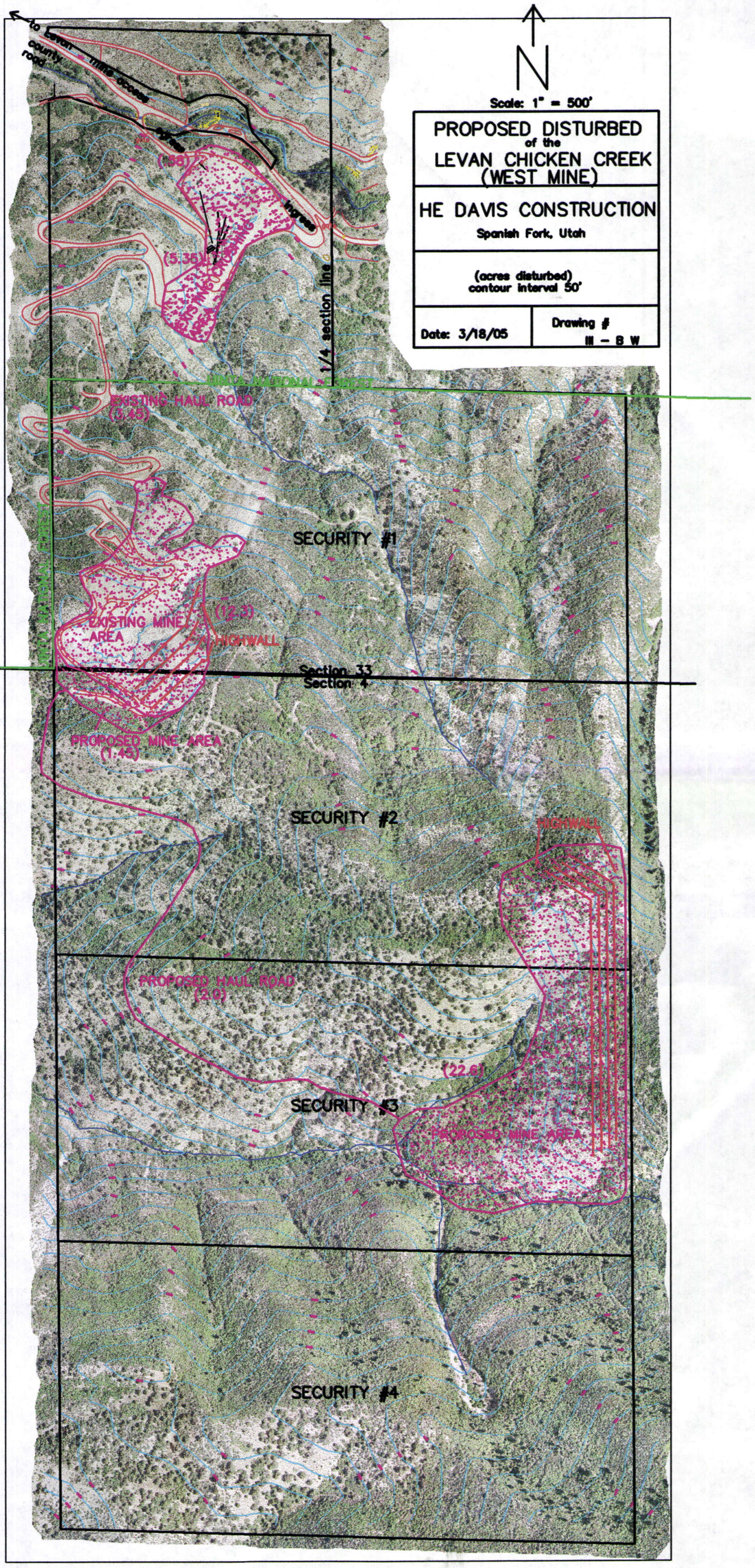
ingress/egress
(.15)

Scale 1" = 100'

ss road

county road

Chicken Creek



CHICKEN CREEK 1E

CHICKEN CREEK 2E

CHICKEN CREEK 3E

CHICKEN CREEK 4E

CHICKEN CREEK 5E

Uinta National Forest

Uinta National Forest

Uinta National Forest

Section 33

Section 34

1/4 section line

1/4 section line

PROPOSED MINE AREA (9.60)

HIGHWALL

TRACKWAY (.6)

CRUSHER AREA (2.85)

TRACKWAY

ingress/egress (.15)

to Levan

mine access road

county road

Chicken Creek

Scale 1" = 300'

PROPOSED DISURBED of the LEVAN CHICKEN CREEK (EAST MINE)

HE DAVIS CONSTRUCTION

Spanish Fork, Utah

(acres disturbed)
contour interval 50'

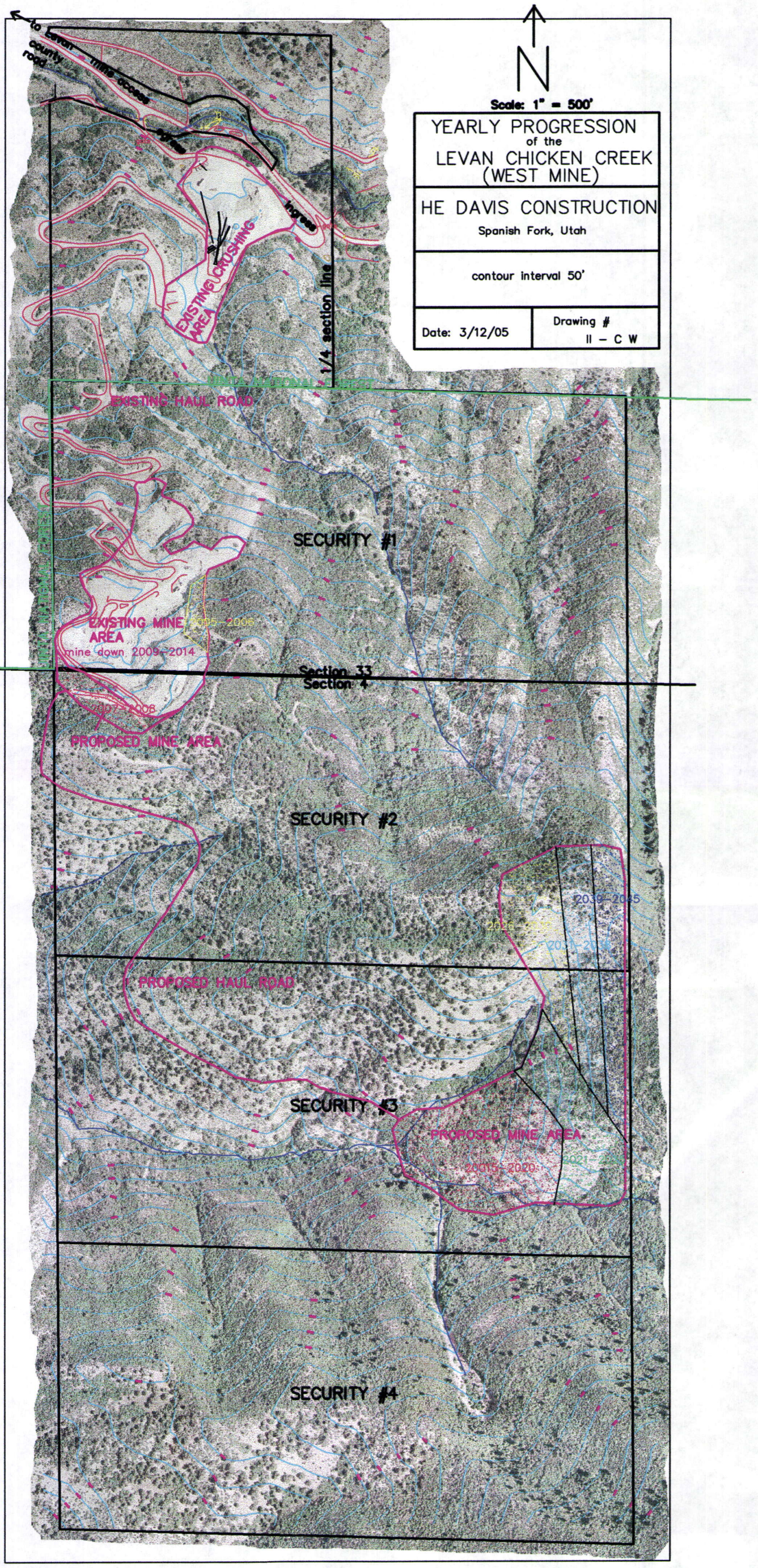
Date: 3/18/05

Drawing #
III - 8 E

RECEIVED

JUN - 9 2005

DIV. OF OIL GAS & MINING



RECEIVED
NOV - 9 2005
DIV. OF OIL, GAS & MINING

CHICKEN CREEK 1E

CHICKEN CREEK 2E

CHICKEN CREEK 3E

CHICKEN CREEK 4E

CHICKEN CREEK 5E

Uinta National Forest

Uinta National Forest

Uinta National Forest

Section 33

Section 34

1/4 section line

1/4 section line

2036-2045

PROPOSED MINE AREA

2026-2035

2016-2025

2012-2015

2006-2011

2003-2009

TRACKWAY

TRACKWAY

CRUSHER AREA

ingress/egress

to Levan

mine access road

county road

Chicken Creek

Scale 1" = 300'

YEARLY PROGRESSION of the LEVAN CHICKEN CREEK (EAST MINE)

HE DAVIS CONSTRUCTION

Spanish Fork, Utah

contour interval 50'

Date: 3/12/05

Drawing # III - C E

RECEIVED

JUN - 9 2005

DIV. OF OIL GAS & MINING

HE DAVIS
LEVAN CHICKEN CREEK
(West)
scale 1" = 500'
N
to Levan
Chicken Creek
county road
ROCK HOLLOW
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400

VEGETATION MAP of LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

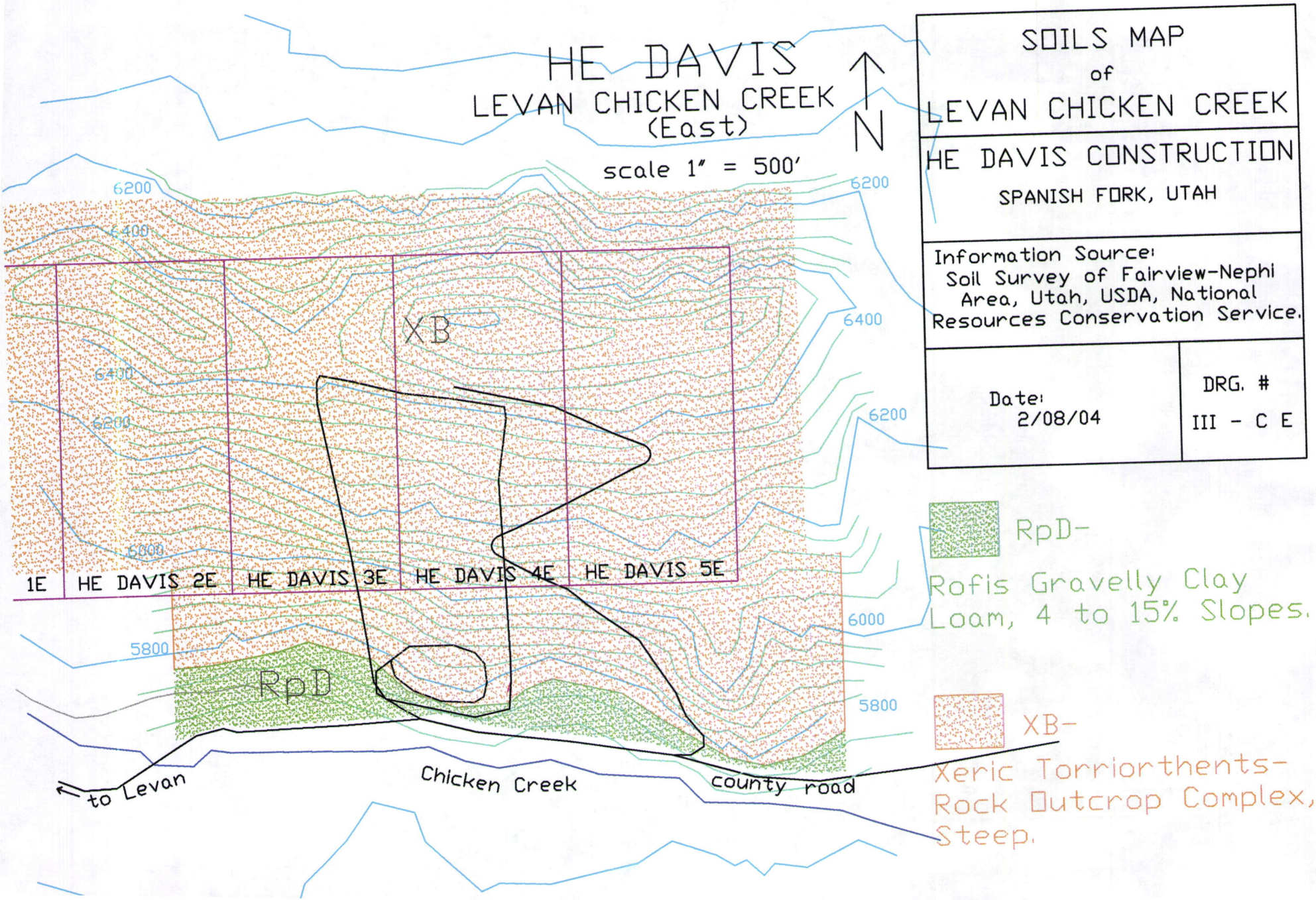
Vegetation

Date: 4/14/03

DRG. # III D W

LEGEND

- Transect Line
- Riparian
- Sagebrush/Grass
- Slender Wheatgrass /Mountain Mahogany
- Pinyon-Juniper
- Mountain Mahogany
- Manzanita
- Gambels' Oak
- Conifer



SOILS MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

Information Source:
Soil Survey of Fairview-Nephi Area, Utah, USDA, National Resources Conservation Service.

Date:
2/08/04

DRG. #
III - C E

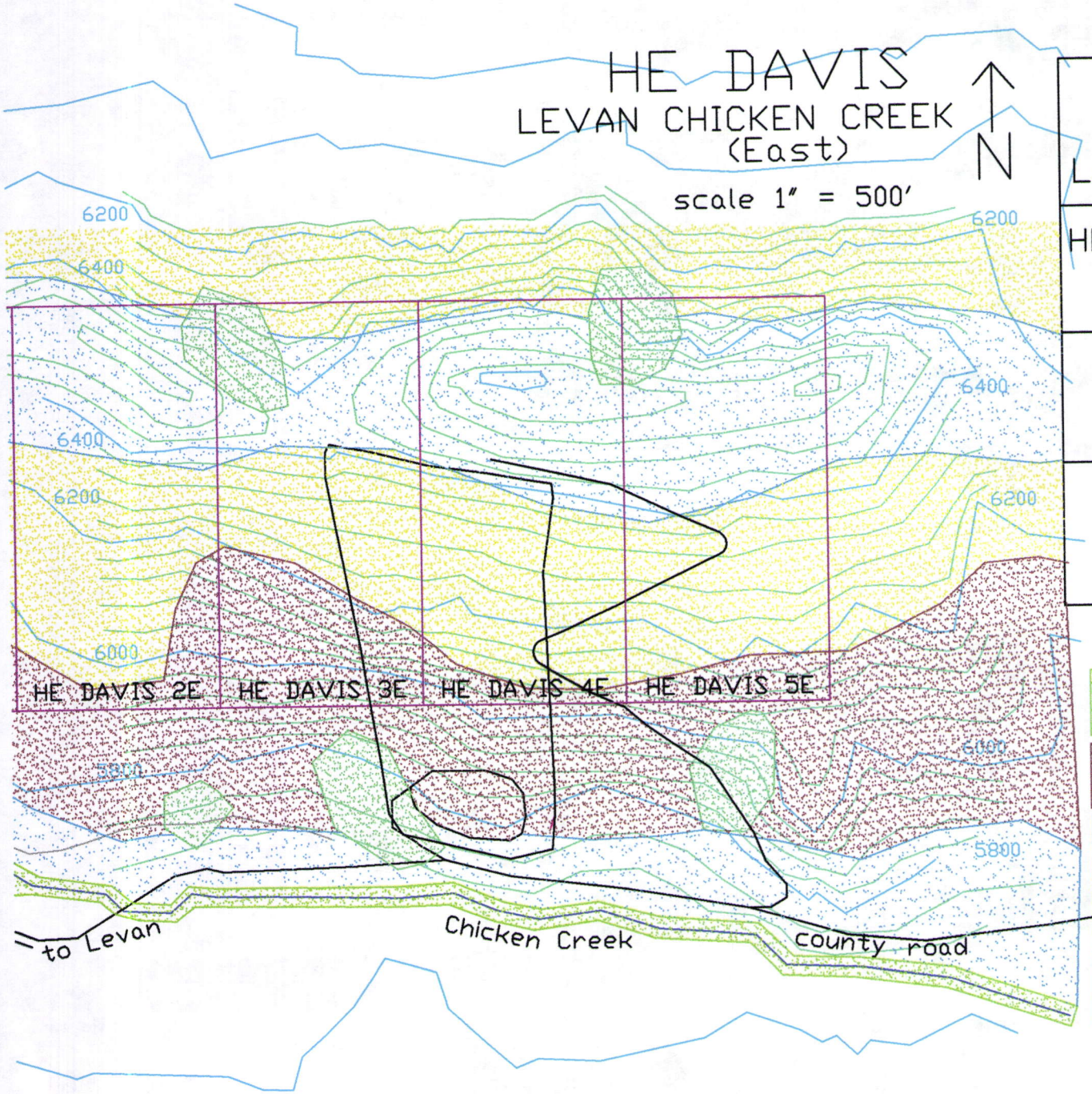
RpD-
Rofis Gravelly Clay Loam, 4 to 15% Slopes.

XB-
Xeric Torriorthents-Rock Outcrop Complex, Steep.

HE DAVIS
LEVAN CHICKEN CREEK (East)

scale 1" = 500'

N



VEGETATION MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

Vegetation

Date:	DRG. #
2/8/04	III - D E

- Riparian
- Slender Wheatgrass /Mountain Mahogany
- Pinyon-Juniper
- Mountain Mahogany
- Gambels' Oak

SOILS MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION

SPANISH FORK, UTAH

Information Source:
Soil Survey of Fairview-Nephi Area, Utah, USDA, National Resources Conservation Service.

Cheched By: P. D. Collins, Ph.D Date: 4/14/03	DRG. # III - C W

LEGEND

C1 Soil Sample Location

RpD- Rofis Gravelly Clay Loam, 4 to 15% Slopes.

XB- Xeric Torriorthents-Rock Outcrop Complex, Steep.

LeF- Lundy-Rock Outcrop Complex, 30 to 70% Slopes.